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JC821 U.S. PTO 10/02/00

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	
First Inventor	GUANG YANG
Title	Integrated Database Data Editing System
Express Mail Label No.	

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

1. ☑ Fee Transmittal Form (e.g., PTO/SB/17) *(Submit an original and a duplicate for fee processing)*
2. ☑ Applicant claims small entity status. See 37 CFR 1.27.
3. ☑ Specification [*Total Pages* 13] *(preferred arrangement set forth below)*
   - Descriptive title of the invention
   - Cross Reference to Related Applications
   - Statement Regarding Fed sponsored R & D
   - Reference to sequence listing, a table, or a computer program listing appendix
   - Background of the Invention
   - Brief Summary of the Invention
   - Brief Description of the Drawings (*if filed*)
   - Detailed Description
   - Claim(s)
   - Abstract of the Disclosure
4. ☑ Drawing(s) *(35 U.S.C. 113)* [*Total Sheets* 4]
5. Oath or Declaration [*Total Pages* 2]
   a. ☑ Newly executed (original or copy)
   b. ☐ Copy from a prior application (37 CFR 1.63 (d)) *(for continuation/divisional with Box 17 completed)*
      i. ☐ DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☐ Application Data Sheet. See 37 CFR 1.76
7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program (*Appendix*)
8. Nucleotide and/or Amino Acid Sequence Submission (*if applicable, all necessary*)
   a. ☐ Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ paper
   c. ☐ Statements verifying identity of above copies

JC836 U.S. PTO 09/677493 10/02/00

ACCOMPANYING APPLICATION PARTS

9. ☐ Assignment Papers (cover sheet & document(s))
10. ☐ 37 CFR 3.73(b) Statement *(when there is an assignee)* ☐ Power of Attorney
11. ☐ English Translation Document *(if applicable)*
12. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
13. ☐ Preliminary Amendment
14. ☑ Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*
15. ☐ Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
16. ☐ Other: .....

17. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:*

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No _____/_____

Prior application information. Examiner _____ Group / Art Unit _____

For CONTINUATION OR DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

18. CORRESPONDENCE ADDRESS

☐ *Customer Number or Bar Code Label* (Insert Customer No. or Attach bar code label here) or ☐ *Correspondence address below*

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Country	U.S.A	Telephone	650-345-5140	Fax	

Name (Print/Type)	GUANG YANG	Registration No. (Attorney/Agent)	
Signature	Guang Yang	Date	9/26/2000

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FEE TRANSMITTAL for FY 2000

Patent fees are subject to annual revision.

TOTAL AMOUNT OF PAYMENT ($)

Complete if Known	
Application Number	
Filing Date	
First Named Inventor	
Examiner Name	
Group Art Unit	
Attorney Docket No.	

METHOD OF PAYMENT (check one)

1. ☑ The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit Account Number: 00326101O229

Deposit Account Name: Checking, Bank of America

☐ Charge Any Additional Fee Required Under 37 CFR 1 16 and 1 17

☐ Applicant claims small entity status See 37 CFR 1 27

2. ☑ Payment Enclosed:

☑ Check ☐ Credit card ☐ Money Order ☐ Other

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
101	690	201	345	Utility filing fee	$345
106	310	206	155	Design filing fee	
107	480	207	240	Plant filing fee	
108	690	208	345	Reissue filing fee	
114	150	214	75	Provisional filing fee	

SUBTOTAL (1) ($) 345

2. EXTRA CLAIM FEES

	Extra Claims		Fee from below	Fee Paid
Total Claims		-20** =		X =
Independent Claims		- 3** =		X =
Multiple Dependent				=

**or number previously paid, if greater; For Reissues, see below

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
103	18	203	9	Claims in excess of 20
102	78	202	39	Independent claims in excess of 3
104	260	204	130	Multiple dependent claim, if not paid
109	78	209	39	** Reissue independent claims over original patent
110	18	210	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($)

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for *ex parte* reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	380	216	190	Extension for reply within second month	
117	870	217	435	Extension for reply within third month	
118	1,360	218	680	Extension for reply within fourth month	
128	1,850	228	925	Extension for reply within fifth month	
119	300	219	150	Notice of Appeal	
120	300	220	150	Filing a brief in support of an appeal	
121	260	221	130	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,210	241	605	Petition to revive - unintentional	
142	1,210	242	605	Utility issue fee (or reissue)	
143	430	243	215	Design issue fee	
144	580	244	290	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Petitions related to provisional applications	
126	240	126	240	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	690	246	345	Filing a submission after final rejection (37 CFR § 1 129(a))	
149	690	249	345	For each additional invention to be examined (37 CFR § 1.129(b))	
179	690	279	345	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	

Other fee (specify) _____

* Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($)

SUBMITTED BY

				Complete (if applicable)	
Name (Print/Type)	Guang Yang	Registration No. (Attorney/Agent)		Telephone	650-345-5140
Signature	Guang Yang			Date	9/26/00

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In re Patent Application of

GUANG YANG

For

"Integrated Database Data Editing System"

filed with the USPTO

PTO/SB/09 (12-97)
Approved for use through 9/30/00 OMB 0651-0031
Patent and Trademark Office; U S DEPARTMENT OF COMMERCE

STATEMENT CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) & 1.27(b))--INDEPENDENT INVENTOR	Docket Number (Optional)

Applicant, Patentee, or Identifier: GUANG YANG

Application or Patent No.:

Filed or Issued:

Title: Integrated Database Data Editing System

As a below named inventor, I hereby state that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:

- [x] the specification filed herewith with title as listed above.
- [ ] the application identified above.
- [ ] the patent identified above.

I have not assigned, granted, conveyed, or licensed, and am under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- [x] No such person, concern, or organization exists.
- [ ] Each such person, concern, or organization is listed below.

Separate statements are required from each named person, concern, or organization having rights to the invention stating their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

Guang Yang		
NAME OF INVENTOR	NAME OF INVENTOR	NAME OF INVENTOR
Guang Yang		
Signature of inventor	Signature of inventor	Signature of inventor
9/26/2000		
Date	Date	Date

INTEGRATED DATABASE DATA EDITING SYSTEM

FIELD OF THE INVENTION

This invention relates to the field of computer database data integrated editing system, more specifically to a novel system and methods, which directly retrieve database text and binary data, modify the data and then send the data back to the original database through either intranet or Internet.

BACKGROUND OF THE INVENTION

Computer database is the central data repository place for most software applications. The database stores data temperately or permanently, and in most cases the database data needs to be dynamically input, output, modified or updated frequently. In most business applications, especially the e-commerce applications such as product catalogues or product advertisement, the data stored in database is not only the text or character data, but also more likely the binary (or digital) data, such as image, audio, animation, video or compiled software program, etc. One of the best practices for network software applications is to separate the data contents and the data presentation, which means that the data contents need to be stored in database and then passed to the Windows Graphic User Interface (GUI) or web page for presentation. So, an efficient and easy-to-use database data editing system is urgently needed to input, output and edit the database data contents for these business software applications.

Most commercial relational databases, such as Oracle database and IBM DB2, support the Large Object (LOB) data types, which mainly include the Character Large Object (CLOB) and the Binary Large Object (BLOB). The CLOB data type supports text

(ASCII, 8-bit) or character (16-bit) data, and the BLOB data type supports multimedia data such as image, audio, animation, video, compiled software program, etc. Further more, the Oracle database also supports LONG, LONG RAW, NCLOB and BFILE data types. The LONG stands for text or character data. The LONG RAW stands for long binary data. The NCLOB is for multibyte character set. The BFILE stands for Binary File which cannot be directly stored inside the database. The DB2 supports DBCLOB data type, which stands for Double Byte Character Large Object. All of the LOB data types can store the data size up to 2 Gigabytes or 4 Gigabytes, and the data is stored either inside the database or outside the database as "out-of-line" data. The DataBase Management System (DBMS) of a relational database uses a Locator that is stored inside the database to refer or point to the actual data when the data is stored either as a separate data set or outside the database. The LOB data values are manipulated and processed by the DBMS using the built-in specific functions and procedures, which is very difficult to handle even for the computer software professionals.

The present invention is directed to a novel integrated database data editing system, which uses the visual GUI and tools to directly modify and edit the database data in an efficient and easy-to-use manner. The data editing system can edit both the text data and the binary data such as image, audio or video data by incorporating several commercial text and multimedia data editors installed on the local client computer. The editing system is implemented as a client/server version and a web version to remotely edit the database contents through either intranet or Internet. While the prior art may offer some useful methods and mechanisms for editing individual, separate data types and data files, none of them provide the integrated system and advantages to be gained by this invention. Such prior art is reflected in the following U.S. Patents:

a.) No. 5,864,682, to Porter et al., discloses a method and apparatus for use in a digital video delivery system, where a digital representation of an audio-visual work, such as MPEG file, is parsed to produce a tag file. The tag file includes information about each of the frames in the audio-visual work. During the performance of the audio-visual work, data from the digital representation is sent from a video pump to a decoder. Seek operations are performed by causing the video pump to stop transmitting data from the current position in the digital representation, and to start transmitting data from a new

position in the digital representation. The information in the tag file inspected to determine the new position from which to start transmitting data. To ensure that the data steam transmitted by video pump maintains compliance with the applicable video format, prefix data that includes appropriate header information is transmitted by said video pump prior to transmitting data from the new position. A video editor is provided for generating a new video file from pre-existing video file based on editing commands and the information contained in the tag files of the pre-existing video files. A presentation rate, start position, end position, and source file may be separately specified for each sequence to be created by the video editor.

b.) No. 5,875,448, to Boys et al., is directed to an Audio Editor that operates with files capable of storing text and voice data in separate regions, provides functions for entering data as voice data, and also for fully editing the entered voice data. Files can be uploaded from the Audio Editor to a PC application for converting the file entirely to text, providing a system wherein all variable entry and editing can be done verbally, and conversion to text left as a final chore. In an alternative embodiment the Audio Editor is implemented as a PC application wherein a user can enter and fully edit variable input as voice, and then communicate the resulting file to another for final conversion. In yet another embodiment the Audio Editor is implemented as additional functionality to a high-end word processor application. In further embodiments computerized natural data editors are provided for reviewing and editing natural data streams of all sorts, such as video streams, musical works, and the like.

c.) No. 5,950,207, to Mortimore et al., relates to a computer database for medical imaging that stores and manipulates multimedia data from various sources and reduces misidentification of data. A unique identifier is generated and linked to each data object, preferably at the time the image is generated. A graphical representation of the identifier is incorporated into the image or text when displayed or printed. A detector may be used to read the representation, allowing the identifier to be read and identify the data.

d.) No. 6,035,309, to Dauerer et al., presents a system that provides for the easy editing of wide files for convenient viewing of selected columns. The system uses a function key to invoke a window that lists multiple possible combinations of views of the

file which can be selected to present a choice of fields to be viewed simultaneously on the same screen. The fields represent a collection of columns which are a subset of the columns of the entire file. The system presents selected columns of data in a narrow width to facilitate viewing, comprehending, and/or editing the data.

e.) No. 6,105,055, to Pizano et al., is related to a multimedia collaboration system combines unique multimedia communication and media processing mechanisms with off-the-shell components which support information sharing and distribution. More specifically, the system provides an asynchronous multimedia collaboration whiteboard that enables the creation of messages containing synchronized voice, graphics and mouse gestures to describe conditions associated with an underlying multimedia object. On the server side, the system includes a delayed conference manager connected to a conference database, an email server, a newsgroup server and a web server. On the client side, the system includes a dynamic annotation editor which enables the use of synchronized voice, graphics and mouse gestures in the discussion. The client side also includes a newsgroup and reader and a web browser.

The foregoing prior art presents several methods or systems for editing audio or video data, or retrieving or viewing database data. However, none of them give the mechanisms, versatility and advantages in the manner of the present invention.

SUMMARY OF THE INVENTION

This invention is directed to an integrated database data editing system that provides a visual environment and tools for database to input, output, modify and update the database data contents in an efficient and easy-to-use manner. This editing system is extremely useful for editing large database objects such as large text files, audio, image, animation and video binary data files. The system consists of a computer server containing a relational database which supports large data objects and a computer client. The server and client are linked on either intranet or Internet. The client sends query to the database through the network to retrieve a set of the data, and materializes the data to display on the client screen either as the Windows Graphic User Interface (GUI) forms or web pages. The data table displayed on the client screen is defaulted as read-only. When the mouse "single-clicks" on a table cell, the data of the cell can be directly edited by the

actions of inserting, overwriting, deleting, copying, pasting, etc. When the mouse "double-clicks" the table cell, a default data editor installed on the client computer is popped up depending on the data type of the cell. If the data is text or character data type, a Notepad or Wordpad pups up. If the data is binary image, an Image or Paint Shop pops up. If the data is binary audio or video, a multimedia editor such as AudioStation 32, Animation Shop or VideoStudio pops up. A list of the data editors installed on the client computer is also provided to the user. The data file is then uploaded into the data editor, and the user edits the data by using the facilities provided by the editor. When the user finishes the data editing, the data file is directly saved and transferred to the remote database through the network.

There are two implementing versions for the data editing system, a client/server version and a web version. The client/server version is installed and run on the intranet. The Window GUIs are implemented by using Java AWT, Swing, Applet, or alternately Visual C++, Visual Basic, etc. The query and data is transferred by SQL, JDBC/ODBC between the client and the server database. The Database Data Manager form is similar to a Windows Explorer and contains a Header Panel and a Detail Panel. The Header Panel lists the database tables. The Detail Panel consists of several folders, which include the Entity Relationship Designer, Table Designer, Database Schema, Data Filter and SQL Console. When the mouse clicks a table name listed on the Header Panel, the table contents are retrieved from the remote database and displayed on the screen as a Single Document Interface (SDI) table. The user can also select and click multiple table names, then the Multiple Document Interface (MDI) tables are displayed. The data on a table cell is default as read-only. The user single-clicks a cell to directly edit the data of the cell, and double-clicks a cell to pup up a data editor. The user can edit the data by using the facilities provided by the data editor, and directly send the data back to the original database.

The web version of the data editing system consists of a server containing a database and a web server and a client with a browser. The editing system is mainly implemented by using Java technologies. The JDBC/ODBC is used to retrieve and transfer data from the database, the Servlets and Java ServerPages are used to implement the middle ware, and the HTML, DHTML, JavaScript and Applets are used to implement

the web pages. The Database Data Manager page, similar to the Windows GUI Database Data Manager of the client/server version, is comprised of a Header Frame and a Detail Frame. When the user clicks a table name on the Header Frame table list, a new web page containing the table data is displayed. The data on the table cell is default as read-only. When the user single-clicks a cell, the data can be directly edited, and the user double-clicks the cell, a data editor installed on the local client computer pops up. When the user finishes the data edition, the data is directly sent back to the original database through the Internet.

The other computer languages, such C++, C, Visual C++, Visual Basic, etc., can also be used to implement both the client/server version and the web version of the editing system. The Secure Socket Layer (SSL), Secure Electric Transaction (SET) and Public Key Infrastructure (PKI) technologies are used for secure data transmission through the Internet. The user authentication and access control mechanisms are also used to identify the users.

BRIEF DESCRIPTION OF DRAWING

Figure 1 is a general schematic representation of the integrated database data editing system.

Figure 2 is a schematic representation of the client/server version of the integrated database data editing system.

Figure 3 is a schematic representation of the detail mechanisms and Windows GUI forms of the client/server version of the integrated database data editing system.

Figure 4 is a schematic representation of the web version of the integrated database data editing system.

DETAILED DESCRIPTION OF THE INVENTION

This invention represents an integrated database data editing system that provides a visual environment and tools to input, output, modify and update the database data contents in an efficient and easy-to-use manner. The data editing system is extremely useful for editing large database objects such as large text file, audio, image, animation and video binary data files by using the incorporated commercial data editors. The data

editing system is mainly designed and implemented by using current Java technologies. Figure 1 demonstrates that the database data editing system consists of a computer server 10 containing a relational database 11 which supports large text and binary data objects and a computer client 8 supporting the graphic user interfaces. The server and client are linked on either intranet or Internet 9. The client computer contains a Database Data Manager user interface, which provides the necessary environment and tools to edit the database data. The client sends query to the remote database through the network 9 to retrieve a set of the data. The database data is returned from the remote database to the client, and then materialized to display on the client screen either as the Windows Graphic User Interface (GUI) forms or web pages. The database table 2 displayed on the client screen is defaulted as read-only 3. When the mouse "single-clicks" on a table cell 4, the data of the cell is directly edited by the action of inserting, overwriting, deleting, copying, pasting, etc. When the mouse "double-clicks" a table cell 5, 6, a default data editor 1, 7 installed on the client computer is called and popped up depending on the data type of the cell. A list of the commercial data editors installed on the client computer is also provided to the user to choose. The data file is then automatically uploaded into the data editor. The user uses the data editor to edit the data file, and then send the data file back to the remote database through the network.

There are two implementation versions for the database data editing system of the present invention, a client/server version and a web version. Figure 2 demonstrates the client/server version of the editing system which is installed and run on the intranet. The server computer 31 contains a relational database 30 which supports the large text or binary data objects (LOBs). The client Window GUIs 28 are implemented by using Java AWT, Swing, Applets, or alternately by Visual C++, Visual Basic, etc. The client GUI forms and the server database communicate through the intranet 29. The client sends query to the remote database and the data is retrieved from the database by using SQL, JDBC/ODBC 29. The database data is then materialized and displayed on the client forms. The data cell 23 of the table form 22 is defaulted as read-only. When the mouse single-clicks on a cell of the table, the data of the cell 24 can be directly edited. When the user double-clicks the table cell 25, 26, a default commercial text editor 21 or a multimedia editor 27 is called and popped up from the local client computer. Alternately,

a list of the available data editors on the local client computer can be popped up and let the user select. There are several commercial data editors installed on the client computer, such as the Notepad and Wordpad (Microsoft) are used for editing text (ASCII) or character data type, the AudioStation 32 (Voyette Turtle Beach, Inc.) is for editing audio data, the Imaging and Paint (Microsoft) are for editing images, the Animation Shop (Jacs Software, Inc.) and VideoStudio (Ulead Systems, Inc.) are for editing animation or video data files. Actually, there are many other commercial data editing software available and can be selected as the data editors for this system as well. The data is automatically uploaded to the popped up data editor from the table cell. The user then edits the data on the selected editor. When the data editing is done, the editor directly saves and sends the data back to the remote original database. The data transmission between the client and the server is achieved by creating a JDBC/ODBC connection. The JDBC driver is created by bridging the JDBC to ODBC as a JDBC-ODBC bridge, or by directly connecting the JDBC to the database. The JDBC and the DataBase Management System (DBMS) contain enough built-in methods, functions and procedure to process these large text or binary data files.

Figure 3 further demonstrates the detail components and mechanisms of the major client Windows GUI forms of the database data editing system of the present invention. The Database Data Manger form 41 contains a Header Panel 42 and a Detail Panel 43 as well as the Menu lists and Icon buttons on the top of the form. The Header Panel lists the database tables. The Detail Panel consists of several folders including an Entity Relationship (ER) Designer, a Table Designer, a Database Schema, a Data Filter, an SQL Console, etc. The ER Designer is used to display and edit the database entity relationship. The Table Designer is used to edit the table data structure. The database Schema displays the database data structure and micros. The Data Filter is used to select a subset of the data from a table or tables from the remote database. The SQL Console is used to run SQL query directly to the remote database. The database tables are displayed as either a Single Document Interface (SDI) table 44 or the Multiple Document Interface (MDI) tables 45. When the mouse single-clicks a table name listed on the Header Panel, the table contents are retrieved from the remote database and displayed on the client screen as a SDI table 44. The user can also select and single-click the multiple table

names, then the MDI tables 45 are displayed. The MDI tables display the data of multiple tables, which are useful to compare the data among the different tables. The user can active a certain table by clicking the table form and the table form is displayed on the front screen. The data of a table cell is edited as the mechanisms stated above by either directly editing on the cell or on the popped up data editor 46, 47, 48, 49.

The web version of the database data editing system of this invention is demonstrated by Figure 4. The web editing system consists of a computer server 73 containing a database 72 and a web server 71 and a client 68 containing a web browser 69. The system is implemented mainly by using Java and web technologies. The Servlets and Java ServerPages are used to implement the middle ware, JDBC/ODBC are used to retrieve and transfer data from or to the database, and the HTML, DHTML, JavaScript and Applets are used to implement the web pages. The client computer uses web browser to communicate with the web server through Internet by HTTP 70. The Database Data Manager web page is similar to the Database Data Manager form 41 (Figure 3) of the client/server version, and is comprised of a Header Frame and a Detail Frame. The Header Frame contains a list of the database tables. The Detail Frames contains several separate folders, which include the Entity Relationship Designer, the Table Designer, the Database Schema, The Data Filter, the SQL console, etc., and the functions of these tools are similar to those of the client/server version (43, Figure 3). When the user clicks a table name listed on the Header Frame, a new web page 62 that contains the table data from the remote database is displayed. The data on the table cell 63 is also defaulted as read-only. When the user single-clicks a cell, the data of the cell 64 is directly edited, and when the user double-clicks a cell 65, 66, a commercial data editor is called and popped up from the local client computer 61, 67. The data file is automatically loaded into the data editor. The user edits the database data by using the facilities provided by the data editor. The edited data is saved to the table web page 62 and then sent directly back to the original database through the Internet.

In brief summary, the integrated database data editing system of this invention directly retrieves, edits, and saves the data to the remote database through either intranet or Internet. This system provides us an efficient, easy-to-use visual environment and tools to edit the database data, especially the large text or binary data which are usually

very difficult to handle, and will greatly benefit the most business software applications and the general users. The Java technology is mainly used to implement the database data editing system of the present invention. Alternately, other computer languages, such C++, C, Visual C++, Visual Basic, etc., can also be used to implement both the client/server version and the web version of the editing system. The user authentication and access control mechanisms of the database data editing system are well implemented. The Secure Socket Layer (SSL), Secure Electric Transaction (SET) and Public Key Infrastructure (PKI) technologies are used for secure data transmission through the Internet.

CLAIMS

What I claim as my invention is:

1. An integrated database data editing system, including the following mechanisms and characters:

(i) the system edits database remotely through either intranet or Internet or locally on the same computer; and

(ii) the editing system provides visual graphic user interfaces and tools which are very efficient and easy-to-use; and

(iii) the system is used to edit the text (ASCII), character and binary data; and

(iv) the system is specially valuable for editing the large text or binary database data files; and

(v) the system incorporates the commercial text or multimedia data editors to edit the database data; and

(vi) the user authentication and access control mechanisms are well implemented; and

(vii) the database data transmission through Internet is secured by using the Secure Socket Layer (SSL), Secure Electronic Transaction (SET) and Public Key Infrastructure (PKI) technologies.

2. The database data editing system of claim 1 contains a well-defined graphic user interface that displays a database table or a subset data of a table and has the following novel characters:

(i) the data on each table cell is defaulted as read only; and

(ii) the data on each table cell is editable when "single-clicked" by the mouse; and

(iii) a commercial data editor is called and "popped up" from the local client computer when the user "double-clicks" the data of a table cell by the mouse; and

(iv) the data editor is either a text editor or a multimedia editor depending on the data type inside the table cell; and

(v) a list of available data editors is available for the user to choose.

3. The database data editing system of claim 1 contains a Database Data Manager which provides a user-friendly environment and tools to edit the database data;

and which contains a Header Panel or Frame containing a Database Table List and a Detail Panel or Frame including a Entity Relationship Designer, a Table Designer, a Database Schema, a Data Filter and an SQL Console.

4. The client/server version of the editing system of claim 1 is installed and run on the intranet and is implemented by using mainly Java technologies such as Java AWT, Swing, Applet, JDBC/ODBC, SQL, etc.

5. The wherein said Database Data Manager of claim 3 of wherein said client/server version of claim 4 can call either the Single Document Interface (SDI) form to display one table or the Multiple document Interface (MDI) forms to display multiple tables.

6. The web version of the editing system of claim 1 is installed on a web server and accessed through the Internet by a client and is implemented by using mainly Java and web technologies such as Servlet, Java ServerPages, JDBC/ODBC, SQL, HTML, DHTML, JavaScript, Applet, etc.

ABSTRACT OF THE DISCLOSURE

An integrated database data editing system for editing text, character and binary database data remotely through networks in an efficient and easy-to-use manner. The editing system contains a visual database data manager, which includes a list of database tables, an entity relationship designer, a table designer, a database schema, a data filter and an SQL console. A special graphic user interface is well defined, from which the commercial text and multimedia data editors are called and "popped up" from the local client computer by double-clicking the table data cell, and the table data cell is directly edited by single-clicking the table data cell. Two versions of the database data editing system are implemented. The client/server version is installed and run on the intranet, which supports both the single document interface (SDI) form or the multiple document interface (MDI) forms to display the database tables. The web version is installed on a web server and run through the Internet. The mechanisms for user authentication and access control and the data transmission through Internet are well implemented.

Figure 1

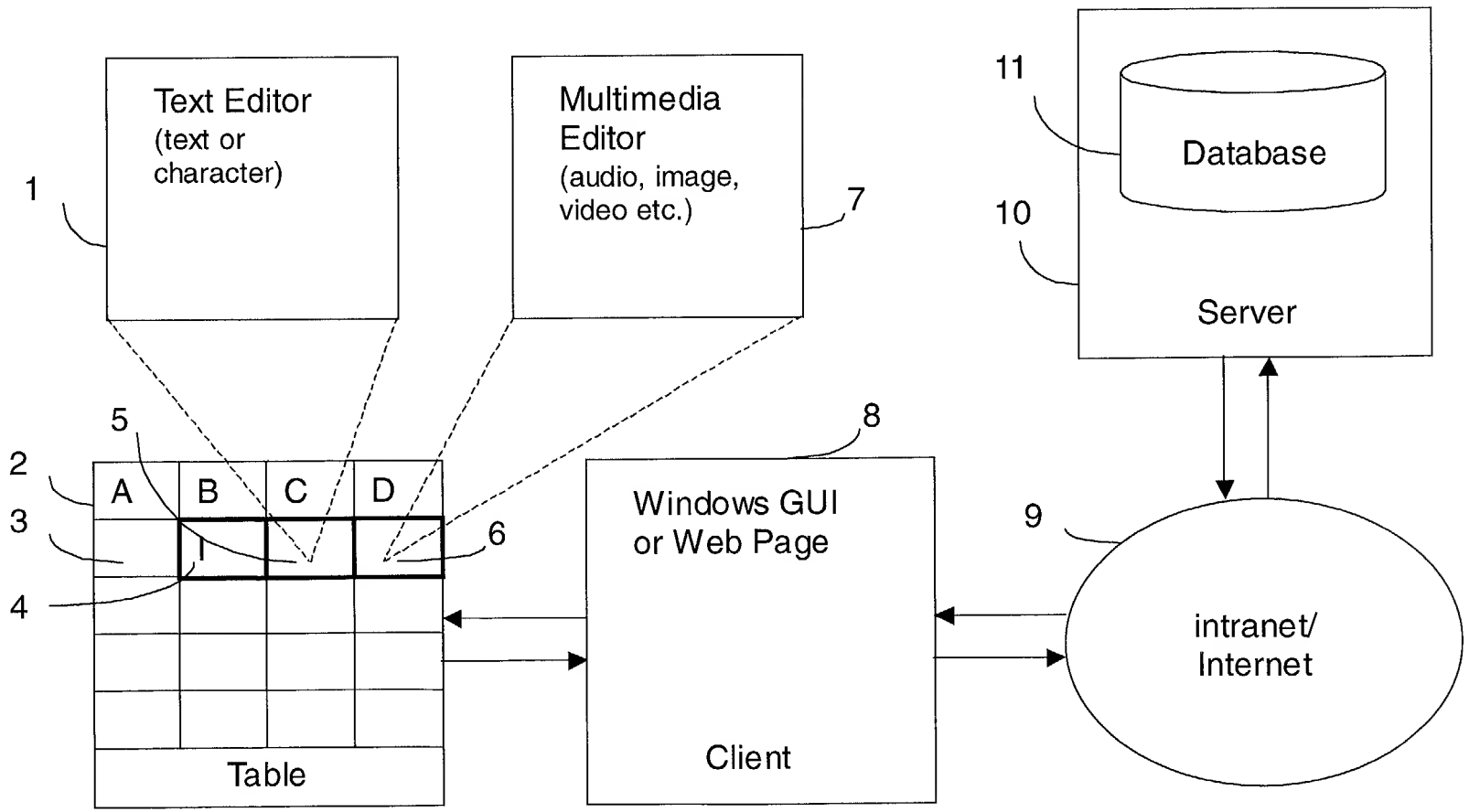

Text Editor
(text or
character)
Multimedia
Editor
(audio, image,
video etc.)
1
7
11
Database
10
Server
5
8
2
A
B
C
D
3
6
4
Windows GUI
or Web Page
9
intranet/
Internet
Table
Client

Figure 2

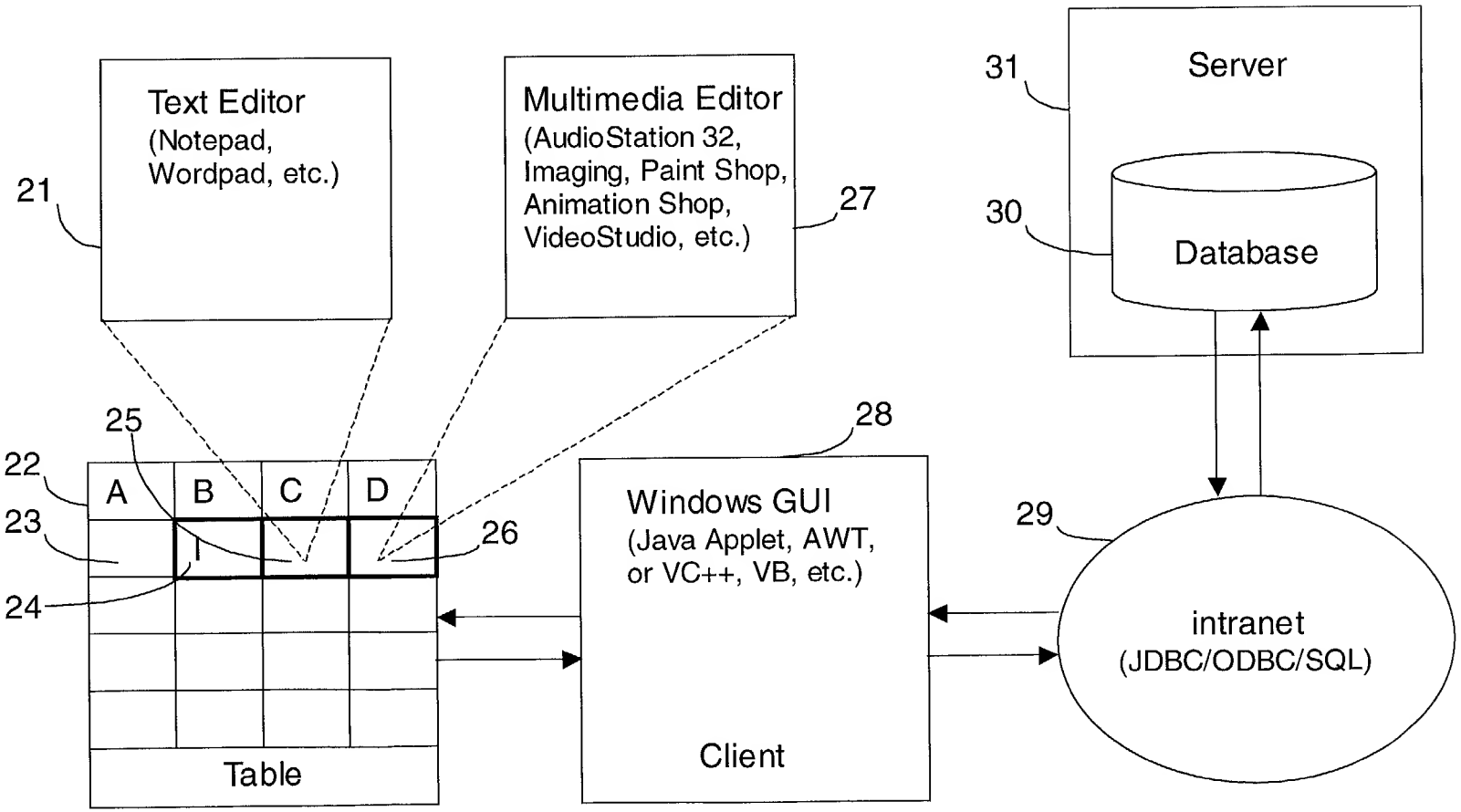

Text Editor
(Notepad,
Wordpad, etc.)
21
Multimedia Editor
(AudioStation 32,
Imaging, Paint Shop,
Animation Shop,
VideoStudio, etc.)
27
31
Server
30
Database
25
22
A
B
C
D
23
26
24
28
Windows GUI
(Java Applet, AWT,
or VC++, VB, etc.)
29
intranet
(JDBC/ODBC/SQL)
Table
Client

Figure 3

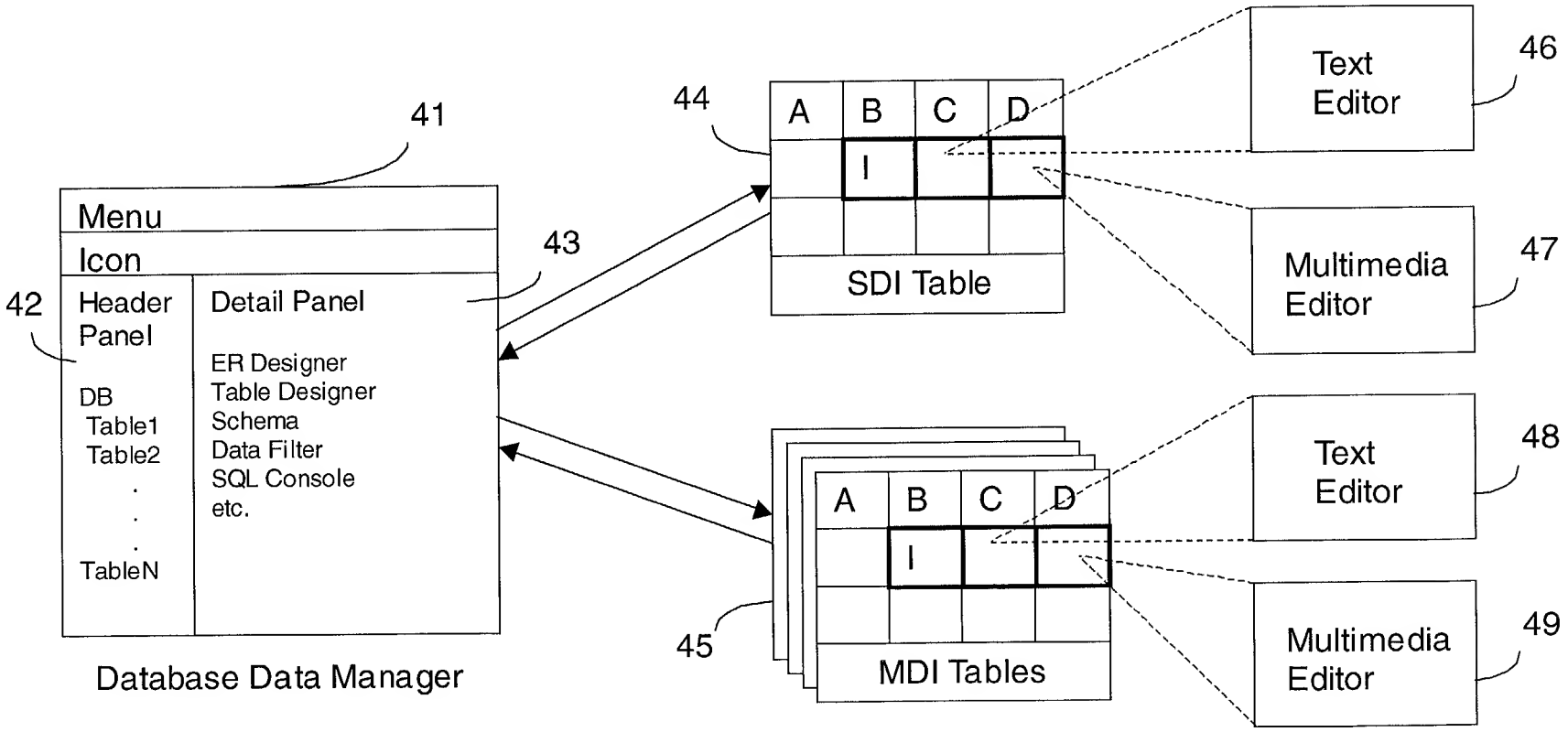
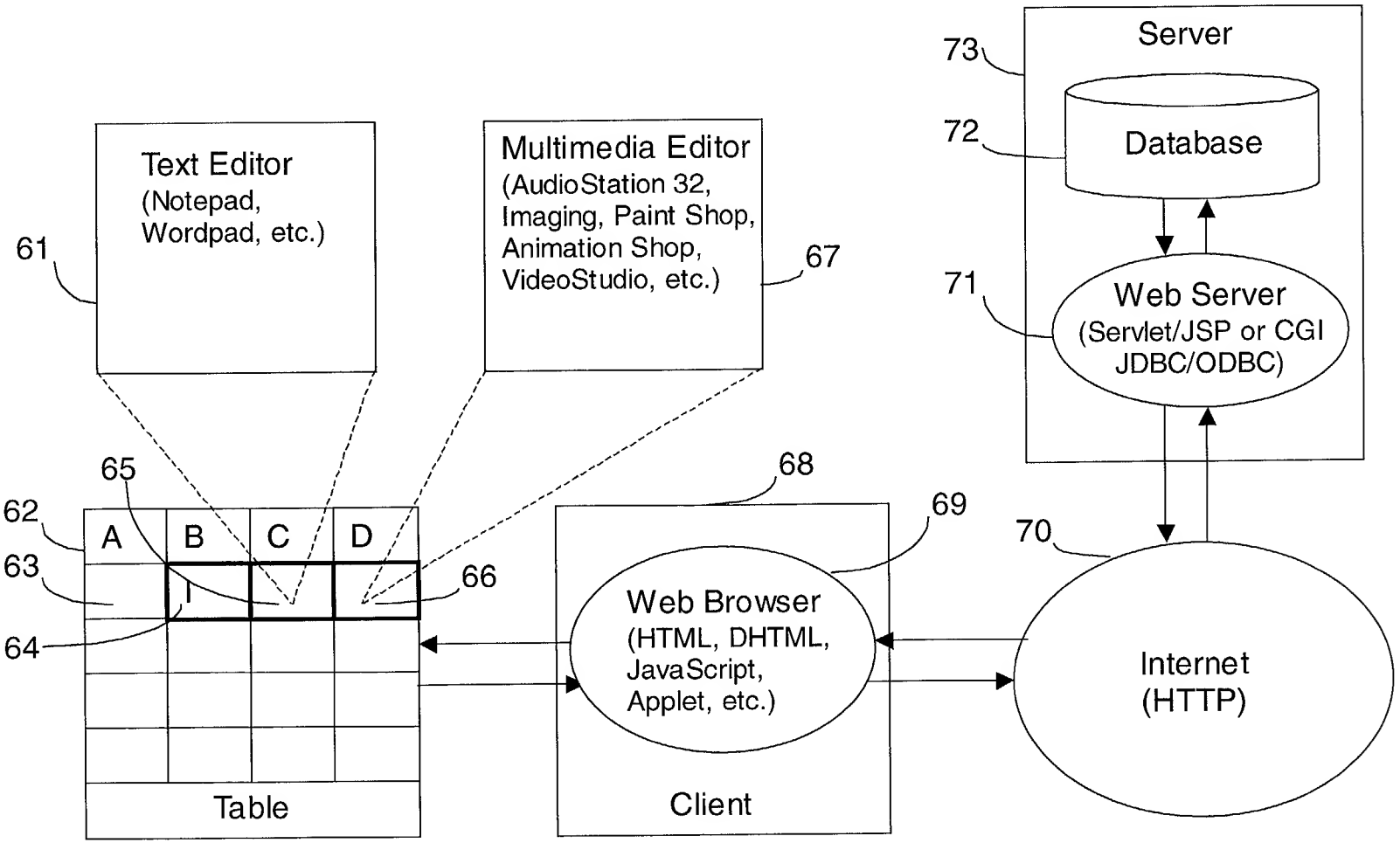

41
Menu
Icon
42
Header Panel
DB
Table1
Table2
TableN
Detail Panel
ER Designer
Table Designer
Schema
Data Filter
SQL Console
etc.
43
Database Data Manager
44
A
B
C
D
I
SDI Table
45
MDI Tables
Text Editor
46
Multimedia Editor
47
Text Editor
48
Multimedia Editor
49

Figure 4


Server
73
Database
72
Text Editor
(Notepad,
Wordpad, etc.)
61
Multimedia Editor
(AudioStation 32,
Imaging, Paint Shop,
Animation Shop,
VideoStudio, etc.)
67
71
Web Server
(Servlet/JSP or CGI
JDBC/ODBC)
65
68
69
70
62
A
B
C
D
63
66
64
Web Browser
(HTML, DHTML,
JavaScript,
Applet, etc.)
Internet
(HTTP)
Table
Client

Please type a plus sign (+) inside this box → ⊞

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DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)

☑ Declaration Submitted with Initial Filing OR ☐ Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)

Attorney Docket Number	
First Named Inventor	Guang Yang
COMPLETE IF KNOWN	
Application Number	/
Filing Date	
Group Art Unit	
Examiner Name	

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Integrated Database Data Editing System

(Title of the Invention)

the specification of which
☑ is attached hereto
OR
☐ was filed on (MM/DD/YYYY) _____ as United States Application Number or PCT International Application Number _____ and was amended on (MM/DD/YYYY) _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? YES	NO
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)

☐ Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

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DECLARATION — Utility or Design Patent Application

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number *(if applicable)*

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As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith. ☐ Customer Number [ ] → *Place Customer Number Bar Code Label here*
OR
☐ Registered practitioner(s) name/registration number listed below

Name	Registration Number	Name	Registration Number

☐ Additional registered practitioner(s) named on supplemental Registered Practitioner Information sheet PTO/SB/02C attached hereto.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor: ☐ A petition has been filed for this unsigned inventor

Given Name (first and middle [if any])	Family Name or Surname
GUANG	YANG

Inventor's Signature	Guang Yang					Date	9/26/00
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Post Office Address							
City	San Mateo	State	CA	ZIP	94402	Country	USA

☐ Additional inventors are being named on the ____supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto